

**T04D07 – (14.2) Hybridization**

Name.....

1. 14.2.1 Describe pi and sigma bonds. (2)
  - a. Briefly describe what the Molecular Orbital Theory is and how it may give a different perspective than the VSEPR theory:
  
  
  
  
  
  
  
  
  
  
  - b. Describe and illustrate a sigma ( $\sigma$ ) bond:
  
  
  
  
  
  
  
  
  
  
  - c. Describe and illustrate a pi ( $\pi$ ) bond:
  
2. 14.2.2 Explain hybridization in terms of the mixing of atomic orbitals to form new orbitals for bonding. (3)
  - a. What is hybridization?
  
  
  
  
  
  
  
  
  
  
  - b. Illustrate  $sp$  hybridization
  
  
  
  
  
  
  
  
  
  
  - c. Illustrate  $sp^2$  hybridization

- d. Illustrate  $sp^3$  hybridization

3. 14.2.3 Identify and explain the relationships between Lewis structures, molecular shapes and types of hybridization ( $sp$ ,  $sp^2$  and  $sp^3$ ). (3)

- a. Complete the following table for the shapes of molecules based on Hybridization:

Hybridization of Central Atom	Number of Negative Charge Centers	Number of Covalent Bonds	Number of Lone Pairs	Shape	Examples
$sp$					
$sp^2$					
$sp^3$					
$sp^3d$					
$sp^3d^2$					